1. On the Fishes of Afghanistan. By Francis Day, F.Z.S.

[Received April 6, 1880.]

In the 'Proceedings' of this Society for the year 1876 I was enabled to give an account of the fishes collected by the Yarkand expedition. Observing how little was known of the forms inhabiting the ranges of hills to the south and south-west of Peshawur, I applied to some friends in India to try and obtain collections. These ranges may be roughly classed into two:-the Suliemans, dividing the Punjab from Afghanistan proper; and the Beluchistan range or Halah Mountains, extending from near Kurrachee to Quetta. Up to the present I have not obtained any fishes from the Suliemans; and as no accounts of any captured there have, so far as I know, been recorded, it is impossible to give more than a guess as to whether their fishfauna resembles that of the Himalayas or that of the Beluchistan range, which two, as I now find, are entirely distinct. Dr. C. Duke has been good enough to collect with great care and discrimination some of the fishes from the highlands about Kelat and Quetta, which I shall have to allude to further on. Col. Miles likewise sent me, in 1872, a small but beautiful collection from a river about twenty miles inland from Gwadur, on the Meckran coast; and what increases the interest of these two collections is that some of the fishes are identical species; so that we may fairly conclude that their range is extensive. I shall also allude to Griffith's collections, and one that I personally made on the eastern or Indian side of the Beluchistan range of hills.

The first account which we possess of the fishes inhabiting Afghanistan is by Griffith, whose collection was described by M'Clelland in the 2nd volume of the 'Calcutta Journal of Natural History.' Griffith, in his tour, collected fish at Loodianah, Ferozepore, also from streams existing in the watershed of the Indus, and likewise from that river itself so far south as near Shikarpoor; then proceeding through the Bolan Pass, he continued his investigations to Quetta, at which place the waters no longer find their way into the Indus, but become lost in detail, or empty themselves into the Helmund. His next researches were into the fishes of the Helmund and its affluents, as well as those of the Cabul river and its feeders until it finds its way past Jellalabad and through the Kyber Pass to Peshawur, and so on to the Indus. I do not intend making any remarks upon Griffith's researches in the Helmund or Cabul rivers, as at a future date we may hope to receive some more fishes from those localities.

The district I propose more especially drawing attention to is a range of hills stretching from the valley of the Indus, their most southern point being near Kurrachee; and in their course they divide Sind from Beluchistan. They tower one above another in steps, and are continued from the south on to Kelat and Quetta, the former being at an elevation of about 7000 feet with a European climate, while they decrease in height to Quetta, where they are

about 5900 feet, the slope of the latter place being, as observed, towards the Helmund.

Griffith's examples of fishes were, unfortunately, all or nearly all destroyed; but he had figures made, and determined them to be as follows:—in the Bolan Pass—Barbus (? B. terio), B. tor, Opsarius (? Chela bacaila), Labeo diplostomus, Gonorhynchus (? Cirrhina latia), Silurus kuggur, ? Macrognathus (Mastacembelus armatus); from a stream at Gurmah flowing into that of the Bolan—Barbus tor, B. (? B. terio), Gonorhynchus (? Cirrhina latia), Systomus bimaculatus (never described if new), S. canius (this cannot be Barbus canius=B. gelius, as the species does not extend so far, but it may be B. ticto); at Quetta he obtained a Barbus with bright red streaks (? Scaphiodon microphthalmus), two other Cyprinidæ (? Scaphiodon irregularis and Barbus milesi), a Gonorhynchus (? Cirrhina latia), and a Loach (Nemacheilus).

Doubt may exist as to the identity of some of these species; but as my examples from Quetta agree in number with those discovered by Griffith, it does not seem improbable that we may be both alluding to the same forms. I will therefore now pass on to descriptions of such fishes as I have received from Gwadur in Beluchistan and the

range of hills terminating at Quetta.

OPHIOCEPHALUS GACHUA, Ham. Buch.

Colonel Miles sent me some small examples from a river near Gwadur; it has likewise been recorded by Griffith that "two species of Ophiocephalus are found at Jellalabad which are unknown in Bengal." These two species were described as Ophiocephalus indicus and O. montanus, M'Clelland. Of the former, two examples, viz. from Loodianah and Seharanpore, exist in the British Museum, and are specimens of O. punctatus, which leads one to the conclusion that the Jellalabad fish was the same; while O. montanus, M'Clelland, is identical with O. gachua, the type (from Afghanistan) being stuffed and in the British Museum.

CALLICHROUS PABDA, Ham. Buch.

Silurus anastomus, Cuv. & Val. S. lamghur, Heckel. Callichrous vittatus, Swainson. Cryptopterus latovittatus, Playfair. Calli-

chrous egertonii, Day.

My reasons for uniting these forms into one species I have fully detailed in my 'Fishes of India,' p. 479; and, admitting they are all identical, the range of the species is very wide: Griffith found one of this genus in Afghanistan; and such may have been identical with the beautiful example $5\frac{1}{2}$ inches in length sent by Dr. Duke. Its pectoral spine is rather strong and serrated.

Griffith obtained from the Cabul river at Jellalabad an example of "a Silurus very like, if not identical with, the Poftah." All the species of Callichrous are known as "Poftah;" therefore it does not appear improbable that it may have been this form which was obtained at Jellalabad, especially as the river eventually finds its way into the

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Indus, where this fish exists. M'Clelland, however, gives it as C. checkra, and Afghanistan and Punjab examples as identical. Two specimens were sent to Europe, one of which (young) is in the British Museum, and is C. checkra=C. bimaculatus, Bloch, but with a smooth pectoral spine, and may be the Afghan fish as labelled. If so, we have two species of Callichrous in Afghanistan.

CIRRHINA LATIA, Ham. Buch.

Cyprinus gohama and ? sada, Ham. Buch. Barbus diplocheilus and Tylognathus barbatulus, Heckel. Gonorhynchus fimbriatus, macrostomus, and brevis, M'Clelland. Chondrostoma wattanah, Sykes.

Crossocheilus rostratus, Günther.

Among Dr. Duke's Quettah fishes are several of this species, but in a very bad state. There are three excellent examples sent by Colonel Miles from Gwadur, $3\frac{1}{4}$, $3\frac{1}{2}$, and $3\frac{3}{4}$ inches respectively in length. The upper lip is not so deeply indented as observable in some Himalayan examples; there is only a single pair of rostral barbels, and four and a half rows of scales between the lateral line

and the base of the ventral fin.

This fish has much the appearance of a Discognathus (which is likewise termed Gonorhynchus by M'Clelland), adhering to stones in the beds of rivers, as I had an excellent opportunity of observing when investigating the fish-fauna of the Beluchistan range of hills. It is subject to numerous modifications; the rudiment of a pad is present behind the lower lip, in the situation where the sucker exists in Discognathus; while the two have the same proportions and the identical number of rays and scales. Consequently one being taken for the other is a not unlikely error. Still, as D. lamta is found from Syria to Abyssinia and through the Himalayas and India, it is to be supposed that it is present in Afghanistan.

Cirrhina latia is very generally distributed from Sind throughout India, excepting south of the Kistna river and the Malabar coast. It is common along the Himalayas, where it attains as much as 8 inches in length. It now appears that it extends along the Beluchistan hills to Quetta, and also along the Meckran coast to Gwadur.

The genus Scaphiodon of Heckel appears to be well represented, as might have been anticipated, it being a Western Asiatic form which extends along the Meckran coast and the Beluchistan range of hills to the Punjab, Sind, and down the Malahar coast.

Scaphiodon irregularis, Day.

This species I originally obtained in the Beluchistan range of hills, at an elevation of 3500 feet. Among Dr. Duke's fishes I find nine examples of it up to $6\frac{1}{2}$ inches in length, thus giving me the opportunity of supplementing my original description. The pharyngeal teeth are plough-shaped, 4, 3, 2 | 2, 3, 4. The gill-rakers are short and somewhat wide apart. Pseudobranchiæ present.

SCAPHIODON ACULEATUS.

Chondrostoma aculeatum, Cuv. & Val. xvii. p. 408.

B. iii. D. 13 $(\frac{3}{10})$. P. 15. V. 9. A. 3 | 7. C. 17. L. l. 37.

L. tr. $7\frac{1}{2} \mid 5$.

Length of head 51, of caudal fin 5, height of the body 4 times in the total length. Eyes: diameter 31 in the length of the head, I diameter from the end of the snout, and 14 apart. Interorbital space nearly flat, snout obtuse; upper jaw the longer; mouth wide, the extent of its cleft not being quite equal to half the width of its The posterior extremity of the maxilla does not reach to beneath the front edge of the eye. Lips thin, with a deciduous horny covering, lost in the single example from Gwadur, but present in both of those from Trál. No tubercle at symphysis. Barbels: a single, short, maxillary pair. Teeth rather compressed, flattened at their extremities, 5, 3, 2 | 2, 3, 5. Pseudobranchiæ well developed. Fins: dorsal commences midway between the end of the snout and the base of the caudal fin; its last undivided ray is osseous, rather weak, but strongly serrated; its anterior rays are as high as the base of the fin is long: pectoral as long as the head, excluding the snout; ventral inserted beneath the middle of the dorsal fin; anal commences midway between the bases of the ventral and caudal fins, the latter forked. Scales in regular rows; four rows between the ventral fin and the lateral line. Lateral line goes almost direct to the centre of the base of the caudal fin. Colours: silvery, darkest along the back; fins grey, the edges being stained rather darker.

Habitat. River near Gwadur, from which it was procured by Colonel Miles. The example is 4 inches long; two, also from Trál, sent by Dr. Duke, the longer $4\frac{1}{2}$ inches. It agrees with Valenciennes' short description of *Chondrostoma aculeatum*, which was obtained from Persia.

SCAPHIODON MICROPHTHALMUS, n. sp.

B. iii. D. $13(\frac{3}{10})$. P. 17. V. 9. A. 2 | 8. C. 19. L.l. 39. L. tr. 6 | 5.

Length of head $5\frac{1}{2}$ to $5\frac{1}{4}$, of caudal fin $5\frac{1}{4}$, height of body $4\frac{1}{3}$ in the total length. Eyes small, diameter $5\frac{1}{2}$ in the length of the head, 2 diameters from the end of the snout, and $2\frac{1}{4}$ apart. Interorbital space slightly convex. The greatest width of the head equals its length excluding the snout. Mouth somewhat overhung by the snout; upper jaw rather overlapping the lower. Mouth wide; lips with a horny covering; the posterior extremity of the maxilla does not extend quite so far as to below the anterior edge of the orbit. Preorbital wider than the rest of the suborbital ring of bones. Nostrils close together, patent, and nearer to the eye than to the end of the snout. Barbels: a short maxillary pair two thirds as long as the eye. Pseudobranchiæ present. Teeth: pharyngeal, plough-shaped, 5, 3, 2 | 2, 3, 5. Fins: the dorsal commences nearly midway between the end of the snout and the base of the caudal fin, its last divided ray weak and

articulated; the height of its anterior rays equals the length of the base of the fin; its last ray divided to its base. Pectoral inserted below the middle of the height of the body, it is nearly as long as the head. Ventral short, its length equalling that of the postorbital length of the head; it is inserted beneath the first divided dorsal ray. Anal commences very slightly nearer the base of the caudal fin than the insertion of the ventral; it is rather more than twice as high as it is wide at its base. Caudal forked, lower lobe the longer. Scales: the two rows just above the lateral line are rather enlarged; four rows between the lateral line and insertion of the ventral fin. Lateral line slightly concave, passing to the centre of the base of the caudal fin. Colours: silvery, lightest along the lower two thirds of the body; "when fresh, they had brilliant scarlet spots on their bodies and below their gills" (Duke). Fins grey, darkest externally, and with a light outer edge.

Habitat. Quetta: two examples captured Oct. 18, 1877, one 6,

the other 63 inches in length.

The extensive genus *Barbus*, of which at least seventy species, besides many varieties, have been recorded from India, Ceylon, and Burma, does not appear to be largely represented in Afghanistan.

BARBUS TOR, Ham. Buch.

Dr. Duke's collection contains one specimen of the true Mahseer, $9\frac{1}{2}$ inches in length. It is of the variety in which the central lobes to the upper and lower lips are not well developed. I found this species likewise pretty abundant on the Sind side of the Beluchistan range of hills. Griffith alludes to having taken the Mahasir, and also a Barbus closely allied to it, from Gurmah, where there exists a branch stream falling into that of the Bolan Pass. In the Bolan rivers he observed them $(B.\ tor)$ in abundance, but not attaining any size, the largest weighing perhaps 3 lb.

BARBUS MILESI.

B. iii. D. 13 $(\frac{3}{10})$. P. 13. V. 8. A. 2 | 7. C. 19. L.l. 39.

L. tr. $6\frac{1}{2}$ | $7\frac{1}{2}$.

Length of head $4\frac{1}{2}$, of caudal fin $5\frac{1}{2}$, height of body $4\frac{1}{2}$ in the total length. Eyes: diameter $4\frac{1}{2}$ in the length of the head, $1\frac{1}{2}$ diameter from the end of the snout, and also $1\frac{1}{2}$ apart. Snout somewhat compressed and pointed; mouth anterior, upper jaw slightly overlapping the lower. Lips thick, but no continuous fold behind the symphysis of the lower jaw; no lobes to the lips: the posterior extremity of the maxilla reaches to beneath the front edge of the orbit. The greatest width of the head equals two thirds of its length. Barbels: a thin maxillary pair about a half as long as the orbit. Teeth pharyngeal, $4, 3, 2 \mid 2, 3, 4$, rather crooked and pointed at their outer extremity. Gill-rakers short and widely separated. Pseudobranchiæ present. Fins: the dorsal commences rather nearer the base of the caudal than to the end of the snout; its last undivided ray is osseous, strong, serrated, and as long as the postorbital portion of the head;

the height of the anterior rays are equal to the length of the base of the fin. Pectoral as long as the head, excluding the snout; its rays very stiff. Ventral inserted beneath the first divided dorsal rays; it is rather longer than the pectoral, but does not reach the base of the anal. The anal commences slightly nearer to the ventral than to the caudal fin; if laid flat, it reaches the latter. Caudal forked, lower lobe the longer. Scales: $5\frac{1}{2}$ rows between the lateral line and the base of the ventral fin. Lateral line at first slightly concave, then continued just to the centre of the base of the caudal. Colours: steel-blue superiorly, becoming light on its sides and beneath; body covered with very fine black specks. Fins dusky, darkest externally.

Habitat. Dr. Duke sent two examples, $4\frac{1}{4}$ and $5\frac{1}{4}$ inches respec-

tively in length, taken in April 1877 from a spring at Trál.

Variety. Col. Miles sent me three examples, the largest being $5\frac{3}{4}$ inches in length. They were taken from the river near Gwadur. They differ from Dr. Duke's specimens in that there are more scales between the lateral line and the base of the dorsal fin; but on very carefully comparing the specimens, it seems as if many of the scales were subdivided into two, causing this variation; its pectoral rays are not so stiff; and the eye is a little smaller.

BARBUS TERIO, Ham. Buch.

The examples of this fish sent by Dr. Duke differ from the typical form in that the last undivided dorsal ray is weak and partially articulated.

NEMACHEILUS --- ?

Dr. Duke has sent several young examples of a species of this genus; but they are too small and in too bad a state of preservation to render it safe to describe them, though they appear to me to be of a species not as yet described, so far as I am aware. It is probably identical with the form obtained by Griffith from the same locality. It is banded with transverse bars of yellow rather wider than the ground-colour, these bars taking on a somewhat angular form near the tail. Col. Miles sent me several small ones of the same species from the river near Gwadur.

In the winter of 1871 I was engaged in investigating the fisheries of Sind; and from Larkhana I turned off to Ghaibi Dehra, and then into the Beluchistan hills for the purpose of examining what species exist in the streams. The first river reached was that at Sita, in the vicinity of which place it disappears into the ground; while, a few miles further on, its origin is as sudden as its disappearance. At this latter locality it is quite hot as it emerges from the earth, while evidences of volcanic action are to be seen all around. In this stream, which is largely impreguated with salt, I obtained the following—Labeo cæruleus, Day, L. diplostomus, Heckel, L. dyocheilus, M'Clelland, Scaphiodon watsoni, Day, Cirrhina latia, Ham. Buch., Botia geto, Ham. Buch. These fishes are all forms common in India,

except Labeo caruleus, which has not been obtained elsewhere. Scaphiodon watsoni may perhaps be found somewhere along these hills; anyhow it has been taken in the Salt range of the Punjab. Having passed the night under a rock in the vicinity of the origin of this river, we continued our ascent the next morning until we attained to about 3500 feet above the level of the sea; here another river, the Nuzarani-ni, was arrived at, of which the appearance was as sudden as that of the Sita stream, while its waters were quite as saline. At its origin I obtained Scaphiodan watsoni, Day, and S. irregularis, Day, a form which I did not obtain elsewhere, but which I now find extends along these hills towards Quetta. This being the highest point of the hills, or Durra ahlu, we stayed there the night, and descended next day along the course of the river, which soon became enlarged and then disappeared into the ground. I took Mastacembelus armatus, Lacép., Labeo dyocheilus, M'Clelland, L. sindensis, Day, Cirrhina latia, Ham. Buch., Barbus tor, Ham. Buch., Chela bacaila, Ham. Buch., and Wallaga attu, Bloch. The fishes, obtained from the lower portion of the river, were altogether forms restricted to Sind and India; while it seems to me probable that the Opsarius referred to by M'Clelland as having been obtained by Griffith in the river in the Bolan Pass was a Chela, as this genus is included among his Opsarii; it was probably Chela bacaila, which I found in this Nuzarani-ni river, or else Barilius vagra, Ham. Buch., which I took in the Gari and Nulli-ni streams.

The next river I came to after leaving Ghul Mohammad was the Garj, reached in a ten-miles journey. Here it emerges from the hills, and is of considerable size. I obtained here Labea diplostamus, Heckel, L. dyocheilus, M'Clelland, Cirrhina reba, Ham. Buch., C. mrigala, Ham. Buch., C. latia, Ham. Buch., Barbus tor, Ham. Buch., Chela bacaila, Ham. Buch., Nemacheilus botia, Ham. Buch.,

The last hill-river examined was the Nulli-ni, which ceases in the early months of the year about three miles from Kota Meer Mohammad. Although rising in the hills, it has more water than some of the rivers that come from a greater distance. Its bed is full of weeds, so that to use a net is very difficult. In some few pools a few fine Mahaseers (Barbus tar) were observed. The fish obtained were Mastacembelus armatus, Lacép., Ambassis nama, Ham. Buch., Ophiacephalus striatus, Bloch, O. aurantiacus, Ham. Buch., Haplacheilus panchax, Ham. Buch., Labeo rahita, Ham. Buch., L. calbasu, H. B., L. diplostomus, Heckel, Cirrhina reba, H. B., Barbus sarana, H. B., B. tor, H. B., B. ticto, H. B., Barilius vagra, H. B., Danio devario, H. B., Chela bacaila, H. B.

If the foregoing fishes are tabulated, excluding the rare local forms, the following results are arrived at:—Ambassis nama, Ophiocephalus striatus and O. aurantiacus, Haplocheilus panchax, Labeo rahita and L. calbasu, Cirrhina reba and C. mrigala, Barbus sarana and B. ticto, Barilius vagra, Danio devario, Chela bacaila, Nemacheilus batia, and Wallago attu are all fishes of the plains of India which have extended a longer or shorter distance up the hill-streams, but are un-

doubtedly Indian forms. Labeo diplostomus and L. dyocheilus, Cirrhina latia, Barbus tor, and Botia geto are fishes with a widely extended range, found on many of the Indian hills, while some extend far into the plains; while two at least, Barbus tor and Cirrhina latia, are evidently extensively spread in Beluchistan and Afghanistan. Perhaps among the fishes which I obtained on the Sind side of these hills, Scaphiodon leads us most naturally from the Persian to the Indian fauna. S. irregularis seems to be a common form near Quetta; but I have only obtained it in Sind from the highest point of one of the mountain-streams; whereas S. watsoni, which seems to commence on the summit of these hills, passes down into the waters of the plains, and is found even in the salt-range of the Punjab.

The fishes in the collections adverted to as obtained from the high lands of the Beluchistan range of hills furnish us with a single instance of an Acanthopterygian from the Bolan Pass, a locality which perhaps we may well object to as not being at a high elevation. This fish is the *Mastacembelus armatus*, which I likewise obtained from one of the rivers descending from this range to Sind. But this fish may have passed up from the Sind side, being found throughout the Indian region both on the plains and even on the hills, while it extends to China. This genus has likewise been recorded from Syria and also

from West Africa.

Among the Siluroids Griffith records Silurus kuggur from the Bolan; the Kuggur in Sind is the Rita buchanani, a fish one would hardly expect to find in this locality; still it exists in the Cabul river at Peshawur and all down the Indus. Another fish, a Macrones, is likewise termed kuggur in some localities; and several species are spread through Sind, one of which may oe the form referred to; it would seem, however, to be a straggler from the Indian region. Callichrous pabda was obtained in the hills by Dr. Duke; it is remarkable that this form has also been taken at as great a height as Darjeeling in the Himalayas; while it is also found along the deltas of the Ganges, Indus, and Brahmaputra. It may perhaps be considered a vagrant form and a straggler from the Indian region, when, finding some warm valley, it remains there and propagates its kind.

The Cyprinidæ form the bulk of the collections; and we may observe the following fishes present on the high lands of Kelat and Quetta:—Cirrhina latia, also found near Gwadur, and observed generally through India except south of the Kistna and on the Malabar coast; Scaphiodon irregularis, which, passing along these hills, extends to their Sind aspect; S. aculeata not only at Quetta, but also at Gwadur; S. microphthalmus, Quetta; Barbus tor, largely distributed in the Indian region; B. milesi, both from those hills and Gwadur; B. terio, another widely spread Indian

form.

It is evident, if we may judge from the foregoing facts, that the fish-fauna of this range of hills differs essentially from what obtains along the summit of the Himalayas; for the Schizothoracinæ, so very typical of what exists there, are entirely absent from the Beluchistan range.

The characteristic genus of the Beluchistan fish-fauna would seem to be Scaphiodon or Barbus; but, if I may judge from the number of examples sent of each, the former is the most common. The genus Barbus is found generally distributed throughout Europe, Asia, and Africa; consequently the existence of some forms in Beluchistan was to be anticipated; but out of the three obtained, two seem to be common to India. Scaphiodon extends from the rivers of Syria and Western Asia, along Beluchistan, to the summit of the range of hills; then passing over into Sind, one form is found to be present even in the Salt range of the Punjab. Then we find they are absent until we reach the Western Ghauts, where they are present as far south as the Neilgherry hills and rivers along their bases. This genus is entirely absent from the Himalayas and the plains of India. The fishes of the fresh waters of the Meckran coast appear to be similar to those of the higher regions of Kelat and Quetta, and would seem to be distinct from those of the deltas of the Helmund and the Cabul river. What exists along the Suliemans is as yet an unsolved problem.

2. On Ziphius novæ-zealandiæ. By Prof. Julius von Haast, Ph.D., F.R.S., C.M.Z.S., Director of the Canterbury Museum, Christchurch, New Zealand.

[Received February 18, 1880.]

(Plate XXIII.)

In the 'Proceedings' of this Society for 1876, p. 466, I gave a description of the skeleton of this interesting southern Ziphicid Whale. I there gave, on the authority of the late Mr. F. Fuller, Taxidermist of the Canterbury Museum (who went to secure the skeleton of that specimen, stranded in Lyttelton Harbour), some details about the characteristic form and colour of the skin of the animal in question. When my informant arrived where the fishermen were at work, he found that the blubber had nearly all been taken off; so that he could only partially obtain the required measurements. From the observations I am about to offer to the Society, on two more specimens stranded since then on our seabeach, it will be seen that some of the statements were far from being correct; in fact, the animal was so much cut about that its lower part was taken for the upper, and vice verså; and consequently no dorsal fin could be found where it was looked for.

The first of the specimens now under review was stranded on Sunday, November 17, 1878, near New Brighton. There were numerous visitors at the time, who observed another whale (according to other lookers-on two whales) in the offing, by which the animal was driven into the surf, where soon it became helpless. Gradually it was drifted upon the low sandy beach, where it died only after a long struggle.